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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/943,237

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9386

7590

09/10/2004

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EXAMINER

GUERRERO, MARIA F

ART UNIT

PAPER NUMBER

2822

DATE MAILED: 09/10/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/943,237

Applicant(s)

ENDISCH ET AL.

Examiner

Maria Guerrero

Art Unit

2822

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 08 June 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 20,24-26,30 and 32-36 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 20,24-26,30 and 32-36 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

1. This Office Action is in response to the Amendment filed June 8, 2004.

### Status of Claims

2. Claims 1-19, 21-23, 27-29, and 31 are canceled. Claims 20, 24-26, 30 and 32-36 are pending.

### *Claim Rejections - 35 USC § 112*

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 20, 24-26, 30, 32-36 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 20 recites: "providing a solvent mixture, wherein the solvent mixture comprises an active component and at least one **non-solvent** component"; claim 32 recites "the active component is miscible with the **non-solvent** component"; claim 34 recites t the **non-solvent** component comprises water, an alcohol, ethyl lactate, acetonitrile, an amine or an amide; claim 36 recites the **non-solvent** component comprises ethyl lactate. Clarification is requested because claim 20 recites a solvent mixture.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 20, 26, 32, 34, and 36 are rejected under 35 U.S.C. 102(e) as being anticipated by Huang et al. (U.S. 6,485,576).

Huang et al. teaches spin-depositing a spin-on compound (comprising silicon) on a surface of a substrate and spin rinsing the spin-on compound with a solvent mixture (Abstract, col. 1, lines 14-16, col. 3, lines 20-45 col. 4, lines 28-50). Huang et al. shows the solvent mixture comprising a first solvent that dissolves the spin-on compound, and the second solvent that is inert to the spin-on compound (col. 4, lines 28-50). Huang et al. teaches the spin-on compound being SOG (silicate) (Abstract, col. 1, lines 14-20). Huang et al. shows the solvent mixture comprising ethyl lactate (col. 4, lines 30-45).

5. Claims 20 and 33-34 are rejected under 35 U.S.C. 102(e) as being anticipated by anticipated Leung et al. (U.S. 6,44,495).

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in

the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Leung et al. teaches spin-depositing a spin-on compound (comprising silicon) on a surface of a substrate and spin rinsing the spin-on compound with a solvent mixture (col. 13, lines 50-65). Leung et al. shows the solvent mixture comprising propanol and acetone (col. 13, lines 56-60).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 33 and 35 are rejected under 35 U.S.C. 103(a) as being obvious over Huang et al. (U.S. 6,485,576) in view of Yoshida et al. (U.S. 6,534,595).

Huang et al. does not specifically show the mixture comprising the ester such as propyl acetate. However, Yoshida et al. is cited as evidence to show that the selection of the ester (propyl acetate) as a solvent is within the capabilities of a person of ordinary skill in the art (col. 6, lines 49-60).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to recognize that the use of propyl acetate can be incorporated on Huang et al. reference as taught by Yoshida et al. because Huang et al. suggested

that other solvent may be used (Huang et al., col. 4, lines 45-50) and this is a industrially available safe solvent (col. 6, lines 49-60).

7. Claims 24-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Huang et al. (U.S. 6,485,576) in view of Kalnitsky et al. (U.S. 5,435,888).

Regarding claims 24-25, Huang et al. does not specifically show the substrate having a trench and the compound being a silicate. However, Kalnitsky et al. shows the substrate having a trench and spin-on deposited into the trench (Fig. 1A-3C, col. 3, lines 58-65, col. 4, lines 1-40).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to modify Huang et al. reference by including the substrate having the trench and spin-on deposited into the trench as taught by Kalnitsky et al. in order to produce interlevel dielectric having high degree of planarization (col. 1, lines 7-15).

### ***Response to Arguments***

8. Applicant's arguments with respect to claims 20, 24-26, 30 and 32-36 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Maria Guerrero whose telephone number is 571-272-1837.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amir Zarabian can be reached on 571-272-1852. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

September 2, 2004

  
**MARIA F. GUERRERO**  
**PRIMARY EXAMINER**